(No Model.) 2 Sheets—Sheet 1.

C. L. PRINDLE.

GATE FOR SWING BRIDGES.

No. 360,911. Patented Apr. 12, 1887.

Fig. 1.

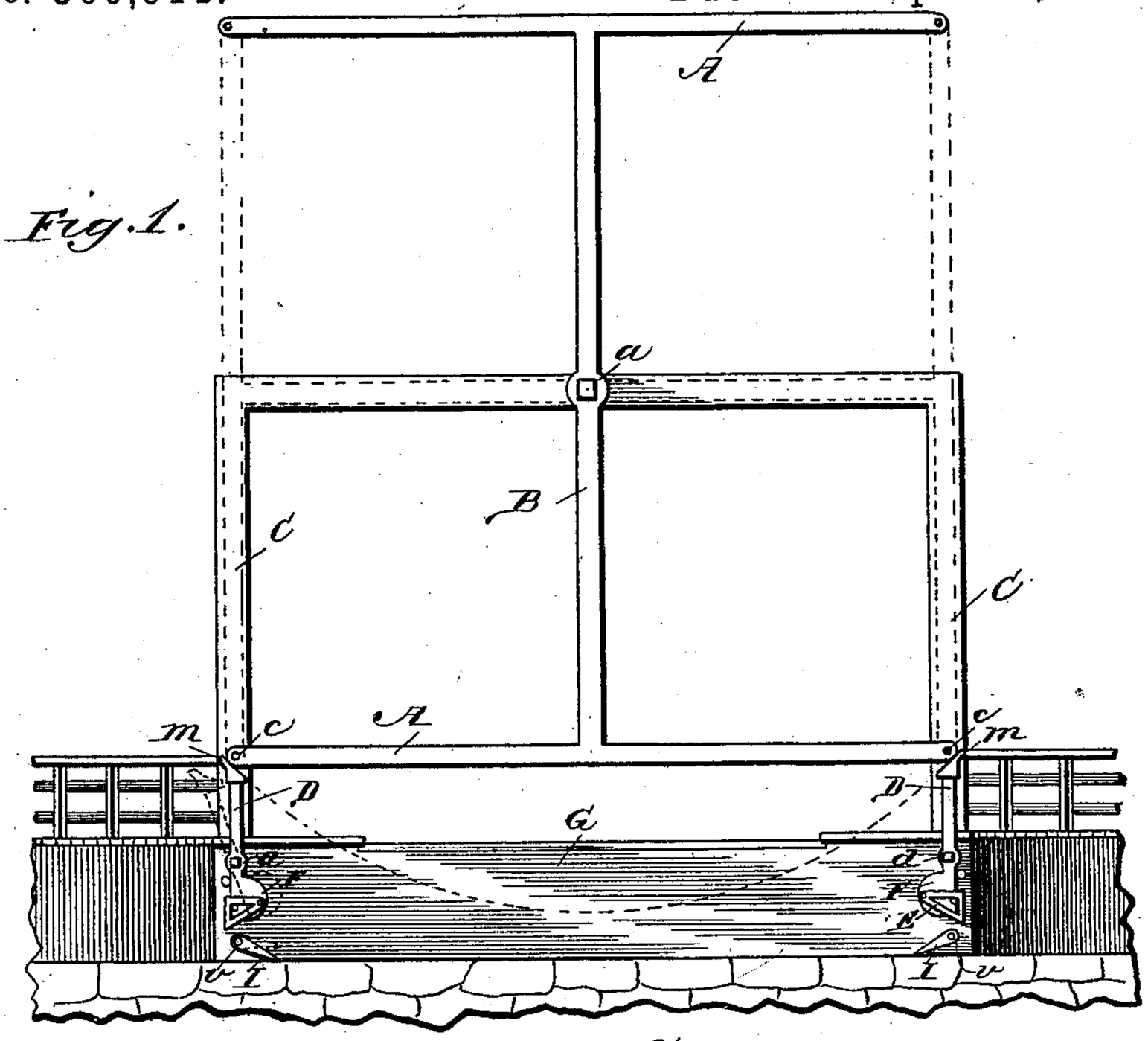


Fig. 3.

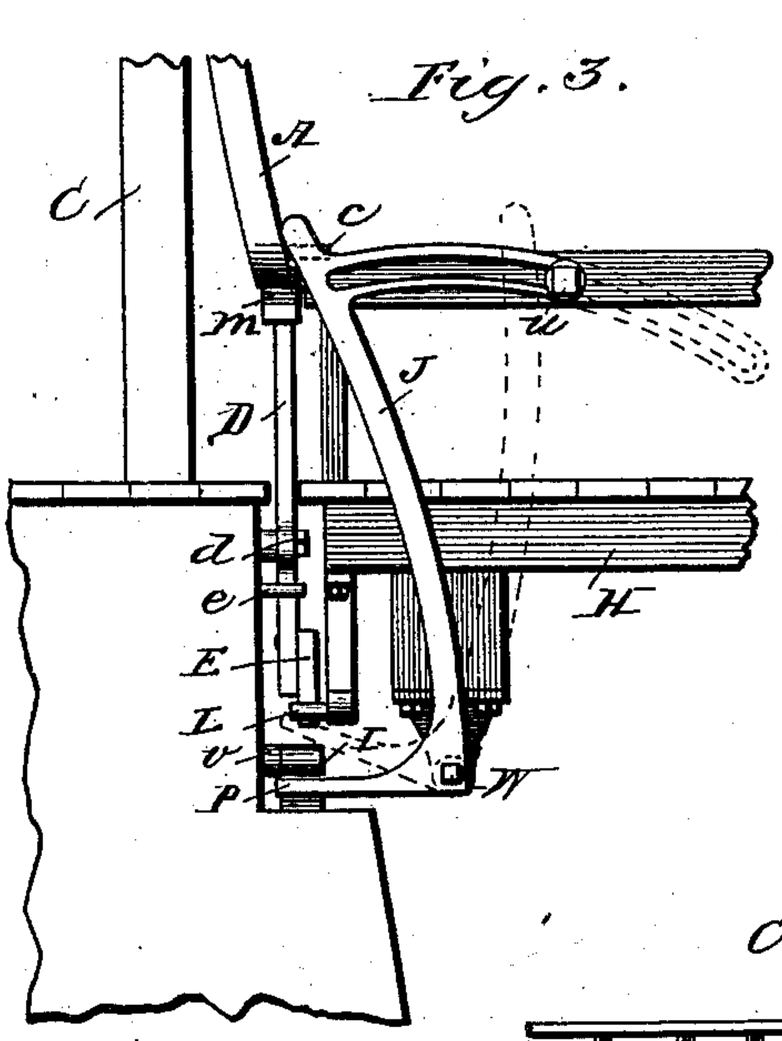


Fig. 2.

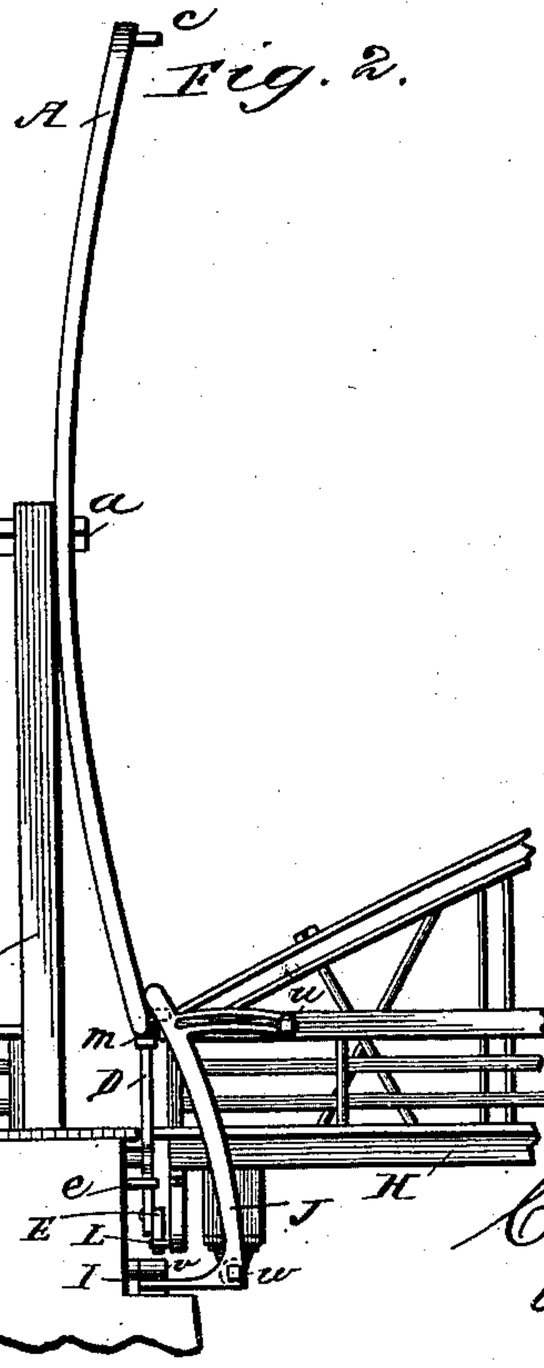
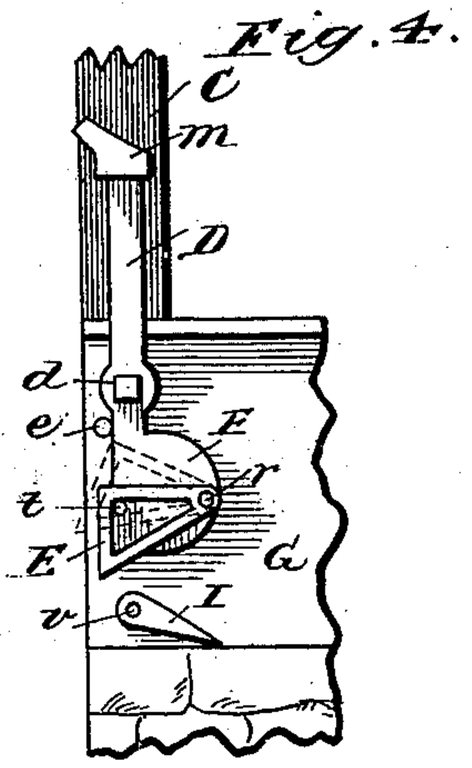


Fig. 4.



Witnesses
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Jno. A. Mills.

Inventor
Croydon L. Prindle

(No Model.) 2 Sheets—Sheet 2.

C. L. PRINDLE.

GATE FOR SWING BRIDGES.

No. 360,911. Patented Apr. 12, 1887.

Fig. 5.

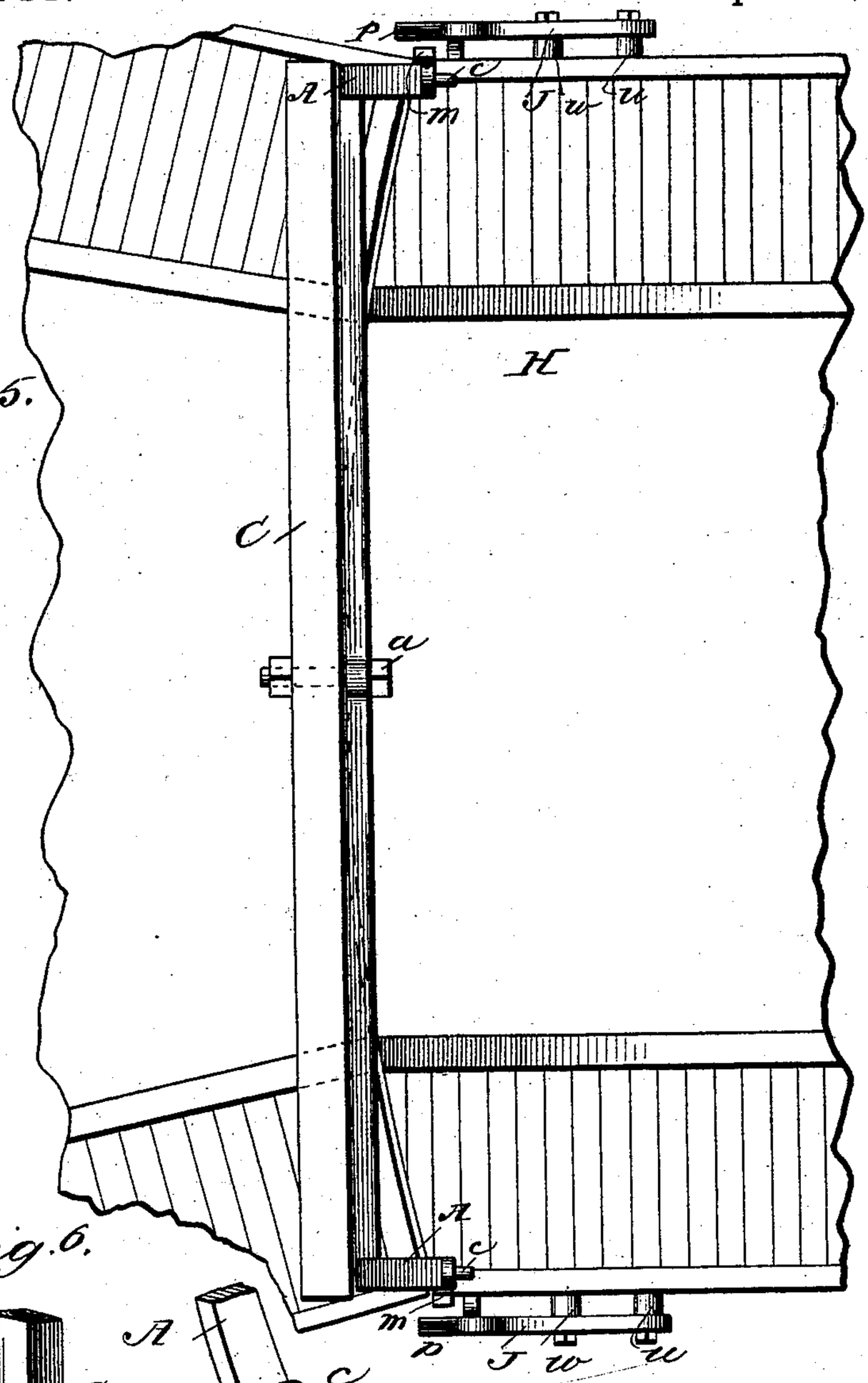
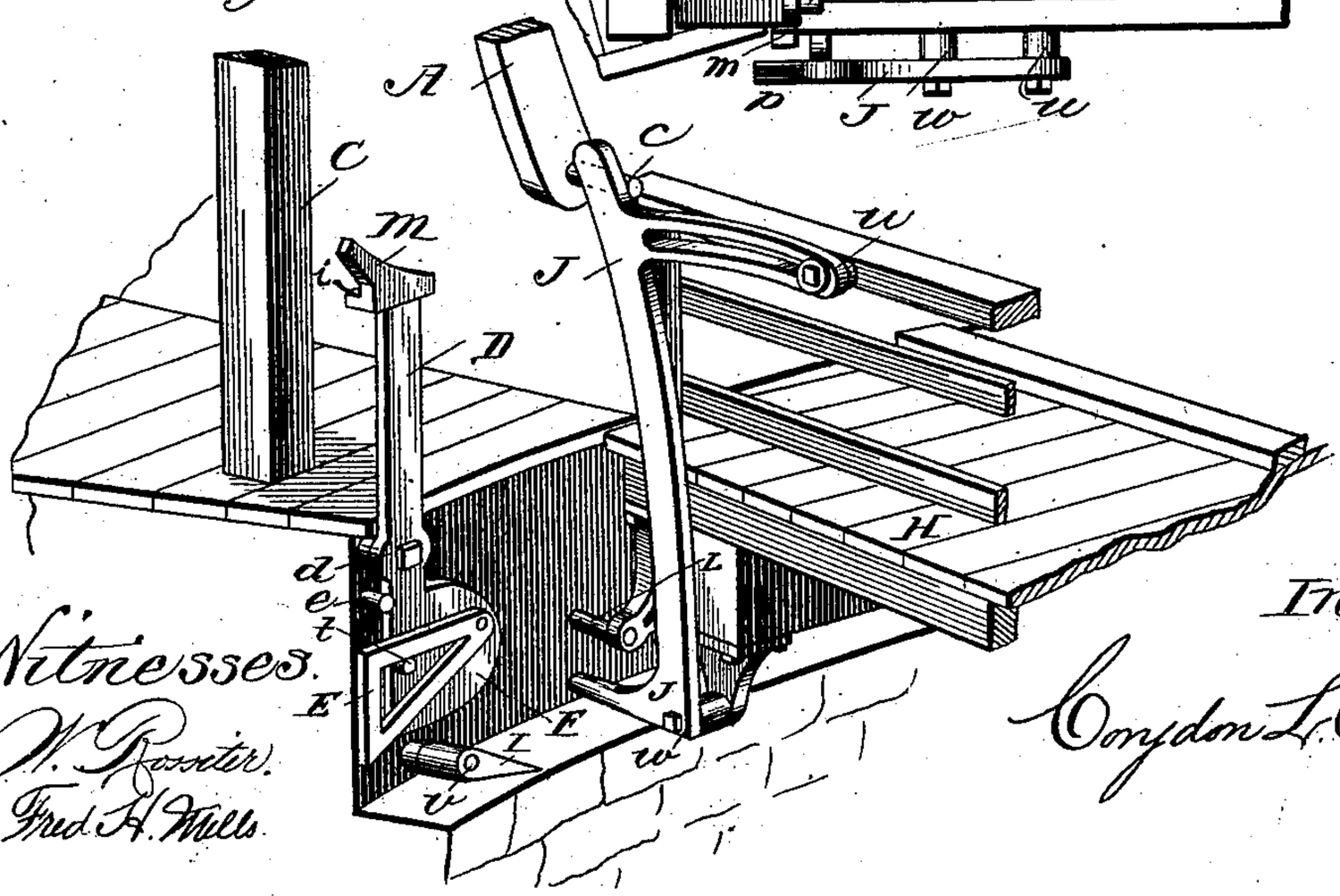


Fig. 6.



Witnesses.
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UNITED STATES PATENT OFFICE.

CORYDON L. PRINDLE, OF EVANSTON, ILLINOIS.

GATE FOR SWING-BRIDGES.

SPECIFICATION forming part of Letters Patent No. 360,911, dated April 12, 1887.

Application filed September 13, 1883. Serial No. 106,372. (No model.)

To all whom it may concern:

Be it known that I, CORYDON L. PRINDLE, of Evanston, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Gates for Swing-Bridges, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to make a gate or guard for swing or draw bridges that shall be closed and opened automatically by the opening and closing of the bridge, being entirely out of the way when the bridge is closed for the passage of vehicles and pedestrians, and following the bridge when being opened for the passage of vessels, effectually closing the space at the end of the approach.

The nature of my invention relates to an H-shaped gate revolving on a central pivot and the devices used in operating the same through the action of the bridge in opening and closing, as hereinafter more fully explained.

In the accompanying drawings, Figure 1 is a front elevation of the gate, as seen from the river, when the bridge is open, the gate being represented as closed and the dotted lines indicating its position when open, together with the devices attached to the abutment or stationary span. Fig. 2 is a side elevation of the same, together with the bridge closed, and the devices attached thereto. Fig. 3 is a detail enlarged side view of the bridge and abutment, showing all the devices in their relative positions. Fig. 4 is a detail front view of the abutment. Fig. 5 is a plan view of the bridge and abutment. Fig. 6 is a perspective view of the abutment and showing the bridge partly open.

The gate consists of the two parallel bars A A, connected in the middle by the cross-bar B, of the same length, and is constructed of either wood, iron, or steel of suitable dimensions to secure sufficient strength and inflexibility. The parallel bars A A are slightly curved, as shown in Fig. 2, to conform as nearly as necessary to the curvature of the end of the bridge and abutment, the degree of curvature depending upon the length of the bridge. The gate revolves on the central pivot, *a*, attached to the stationary wood or iron frame C at the end of the abutment G. A pin, *c*, projects inward toward the bridge from each of the corners of the gate, being of exactly equal distances apart and from the pivot *a*, with which the bridge connects and revolves the gate.

The lower ends of the parallel bars A A, when the gate is open, and the ends of the lower parallel bar, when the gate is closed, rest upon the shoulders *i i* and inside the oblique projections *m m* at the top of the holding devices D D, by which the gate is held in position, whether open or closed, when not being revolved by the bridge.

The holding device D is constructed of wrought-iron, being in the main part from one to two inches thick and about four inches in width. It is slightly revolved upon the pivot *d* by contact of the releasing device L, projecting from the end of the bridge, against the lower end, to release the gate, when required, and when moved out of its perpendicular position is carried back against the pin *e* by the weight F. The upper end, *m*, is turned outward, as shown, in order to escape the pin *c* by preserving an equal distance from the pivot *a*.

In order to render the releasing device L inoperative upon the holding device D when the gate is not to be released, a triangular device, E, is attached to the lower end of the holding device, which is immovable when the contact of the releasing device is against the outer perpendicular side, (when the holding device is to be revolved and the gate released,) but which triangle is revolved on the pivot *r*, as shown in Fig. 4, when the contact is against the inner diagonal side of the triangle, the releasing device then passing under by raising the triangle, and thus becoming inoperative upon the holding device. The triangle when released is carried back by its own weight against the pin *t*.

The carrying device J, attached to the bridge, connects with the pin *c* and revolves the gate. It is constructed of iron or steel one-half or one inch thick and two or three inches wide, the lower projecting end at *p*, which passes over and under the disconnecting device I, be-

ing forged into a round arm one or two inches in diameter. It is attached to the bridge by the pivot *w* at the bottom and the bolt *u*, passing through the slot in the upper projecting end. It extends down and recedes back from a little above and in front of the upper corner of the bridge-railing to nearly the bottom of the bridge in a slightly-curved line, as shown, corresponding to the curvature of the abutment, directly across which the gate revolves in a vertical plane. In order to detach the carrying device from the gate, the end *p* passes over the wedge-shaped disconnecting device I, attached to the abutment and movable on the pivot *v*, thus throwing the upper end back from the pin *c*. When released, it is carried back by its weight against the bolt *u*. In passing in the opposite direction, when the gate is not to be released, the end *p* passes undisturbed under by raising the disconnecting device, which latter device then falls back into place again. The carrying device J and releasing device L are adjusted to the bridge at an exactly equal distance of about six inches from the side.

The gate is opened and closed automatically by the closing and opening of the bridge in the following manner: When the bridge begins to swing open, all the devices on the side in the direction in which it moves are inactive, as on that side the carrying device J is outside of both the pin *c* at the top and the disconnecting device I at the bottom, and the releasing device L is outside of the holding device D. On the opposite side the action is as follows: The releasing device L first comes in contact with the perpendicular side of the triangle E at the bottom of the holding device D, and, revolving slightly, the holding device on the pivot *d* propels the lower end forward, and hence the upper backward, as indicated by the dotted lines D, Fig. 1, far enough to release the corner of the gate resting thereon. Then the carrying device J, passing undisturbed under the disconnecting device I at the bottom, by raising it, as indicated by the dotted lines I, Fig. 1, connects at the top with the pin *c* and carries the gate forward with it. When this corner of the bridge reaches the opposite side of the abutment, the gate forces the top of the holding device D at that side outward far enough to allow the gate to pass to the top of it, when the gate is released from the carrying device by the latter passing over the disconnecting device 1 at the bottom, thus throwing back the upper end, as shown in Fig. 3. The releasing device L here passes under the triangle E by raising it, as shown in Fig. 4, and thus passes without disturbing the holding device. The bridge is then open and the gate closed. As the bridge closes, the releasing device L again disconnects the holding device D from the gate, and the carrying device J, passing undisturbed under the disconnecting device I, connects again with the gate and carries that corner with it to the opposite side, where it is released in the manner already described, the carrying device again passing over the disconnecting device, the releasing device passing under the triangle, and the gate sufficiently revolving the holding device to pass to its top. The gate is then open and the bridge closed. It will be seen that when the bridge is opening and the gate closing the pin *c* is between the carrying device J and the side of the bridge, Fig. 6, and the gate is drawn after the bridge, and when the bridge is closing and the gate opening the pin is outside of the carrying device, the gate preceding the bridge.

The gate may be made the full width of the bridge, as here represented, or, as in the case of bridges in three sections having a carriage-way in the middle with narrower sections for pedestrians on the sides, separate gates may be used for each section, constructed as herein described and operating independently of each other, being so adjusted as to not interfere in revolving.

I claim for this gate the following essential features, some of the most important of which I find in no other invention for the purpose set forth.

First. Simplicity of construction and freedom from liability to get out of repair, no springs or gears being required or used, the holding device and its triangular attachment and the carrying-lever and disconnecting device all returning to position through their own weight.

Second. The exact balancing of the gate upon its central pivot and the minimum of friction connected with the several devices making the gate so easily operated as to be almost, if not altogether, imperceptible to the tender in swinging the bridge.

Third. Operating exactly the same whichever way the bridge is opened and closed, and at all times covering the exact amount of space left open by the bridge, and no more, and not requiring pedestrians or vehicles to stop at a distance from the end of the approach to prevent interfering with its action, and absence of liability to accidents in approaching or passing off the bridge when in motion.

Fourth. It can be attached to any bridge already constructed without material or expensive modification of the approaches.

Fifth. While constituting only a single rail-guard across the approach, it will prevent persons of any height from walking off, and can be made strong enough to stop the force of a runaway team.

I claim as my invention—

1. A gate with the parallel bars A A and cross-bar B revolving on a central pivot, substantially as and for the purposes set forth.

2. The holding device D, in combination with the gate A B, substantially as and for the purposes set forth.

3. The triangular device E, in combination with the holding device D, the releasing device L, and the gate A B, substantially as and for the purposes set forth.

4. The carrying-lever J, in combination with the gate A B, substantially as and for the purposes set forth.

5. The disconnecting device I, in combination with the carrying-lever J and the gate A B, substantially as and for the purposes set forth.

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Witnesses:
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